

**Remarks**

Claims 2 and 8 are pending herein. By this Amendment, claim 2 has been amended to change the specific surface area of the ultrafine silica from 120-280 to 120-240 m<sup>2</sup>/g. New claim 8 has been added which depends upon claim 2 and recites that the specific surface area of the ultrafine silica is 180-240 m<sup>2</sup>/g. Support for these amendments can be found in the specification at, e.g., page 15, Table 1 and in Examples 2 and 4.

In the Final Office Action, claim 2 is rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,506,822 to Ichiroku et al. ("Ichiroku") in view of U.S. Patent No. 6,310,120 to Shiobara et al. ("Shiobara '120") and U.S. Patent No. 5,362,775 to Shintai et al. ("Shintai").

In view of the amendments and remarks herein, Applicant respectfully requests reconsideration and withdrawal of the rejection set forth in the Office Action.

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Applicant respectfully submits that amended claim 2 and new claim 8 would not have been obvious over Ichiroku in view of Shiobara '120 and Shintai.

As noted above, claim 2 has been amended so that the specific surface area of the ultrafine silica is 120-240 m<sup>2</sup>/g. At page 6, line 28 to page 7, line 17, the instant specification describes the unexpected superiority of using a combination of spherical alumina and ultrafine silica having a specific surface area of at least 120 m<sup>2</sup>/g:

When only the spherical alumina is used, flash characteristics during molding are inferior to cause the problem of leakage of the flash onto the substrate in molding of the area mounting type semiconductor apparatus, but when the ultrafine silica is added, the flash characteristics can be considerably improved. The specific surface area of the ultrafine silica is 120-280 m<sup>2</sup>/g, and if it is less than the lower limit, long flashes are produced to deteriorate the flash characteristics, and if it exceeds the upper limit, the composition increases in viscosity to deteriorate flowability. Furthermore, the amount of the ultrafine silica in the whole resin composition is 0.2-0.8% by weight, and if the amount is less than the lower limit, long flashes are produced to deteriorate the flash characteristics, and if it exceeds the upper limit, the composition increases in viscosity to deteriorate flowability. [emphasis added]

Thus, the instant specification teaches that if the specific surface area of the ultrafine silica is less than the lower limit, i.e.,  $120 \text{ m}^2/\text{g}$ , long flashes are produced to deteriorate the flash characteristics. As discussed below in connection with new claim 8, the criticality of a specific surface area of  $240 \text{ m}^2/\text{g}$  for the ultrafine silica can be seen in Examples 2 and 4 set forth in the specification.

Ichiroku discloses finely divided silica having a BET surface area of at least  $100 \text{ m}^2/\text{g}$ . Ichiroku does not teach or suggest an upper limit to the surface area. In view of this, Applicant submits that Ichiroku's teaching relative to the surface area of the silica therein is so broad as to encompass a large number of possible surface areas. Applicant submits that one skilled in the art would not be motivated by Ichiroku to use an ultrafine silica at a specific surface area within the range of  $120$  to  $240 \text{ m}^2/\text{g}$ . Although Examples 2 and 4 presented in the specification do not use an ultrafine silica at the specific surface area of  $120 \text{ m}^2/\text{g}$ , Applicant submits that these Examples do indicate that the specific surface area of the ultrafine silica significantly affects at least the flash characteristics and spiral flow properties of the compositions. This is not taught or suggested in Ichiroku.

New claim 8 has been added which depends upon claim 2 and recites that the specific surface area of the ultrafine silica is  $180\text{-}240 \text{ m}^2/\text{g}$ . The unexpected superiority of using ultrafine silica having a specific surface area of  $180\text{-}240 \text{ m}^2/\text{g}$  can be seen by comparing the results of Examples 2 and 4 and Comparative Examples 3 and 4 set forth in the instant specification. The formulations and properties of the invention examples are shown in Table 1 (page 15), and the formulations and properties of the comparative examples are shown in Table 2 (page 16). All four compositions contained the same type of alumina. The only difference between the compositions was the surface area of the ultrafine silica used therein, as indicated below:

Example 2: Ultrafine silica 1 – specific surface area of  $180 \text{ m}^2/\text{g}$

Example 4: Ultrafine silica 2 – specific surface area of  $240 \text{ m}^2/\text{g}$

Comp. Ex. 3: Ultrafine silica 3 – specific surface area of  $100 \text{ m}^2/\text{g}$

Comp. Ex. 4: Ultrafine silica 4 – specific surface area of  $340 \text{ m}^2/\text{g}$

Thus, Examples 2 and 4 used ultrafine silica having a specific surface area within the range recited in claim 2, whereas Comparative Examples 3 and 4 used ultrafine silica having

specific surface areas outside the range set forth in claim 2. The composition of Comparative Example 3, which used an ultrafine silica having a specific surface area below the range set forth in claim 2, had inferior flash characteristics compared to the other compositions. The spiral flow properties of the composition of Comparative Example 4, which used an ultrafine silica having a specific surface area above the range set forth in claim 2, were inferior to those of the other compositions. The compositions of Examples 2 and 4, which used ultrafine silica having specific surface areas within the range of instant claim 2, had excellent flash characteristics and thermal conductivity, little warpage and excellent temperature cycle properties.

Applicant respectfully submits that the results shown in Tables 1 and 2 in the instant specification represent unexpected results in view of the teachings of Ichiroku, Shiobara '120 and Shintai.

Accordingly, in view of the amendment and remarks herein, Applicant respectfully requests that the rejection of claim 2 be withdrawn and that claims 2 and 8 be allowed.

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If any additional fees are due in connection with the filing of this paper, such as fees under 37 C.F.R. §§1.16 or 1.17, please charge the fees to Deposit Account 02-4300; Order No. 033036M073.

Respectfully submitted,

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Enclosures: (1) Request for Continued Examination  
(2) Petition for Extension of Time  
(3) Check for the Sum of \$1120